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The Labor Factors in
Engineering Construction

Civil Engineering

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THE LABOR FACTORS
IN
ENGINEERING CONSTRUCTION

BY

NICHOLAS GERTEN

THESIS
FOR THE
DEGREE OF BACHELOR OF SCIENCE

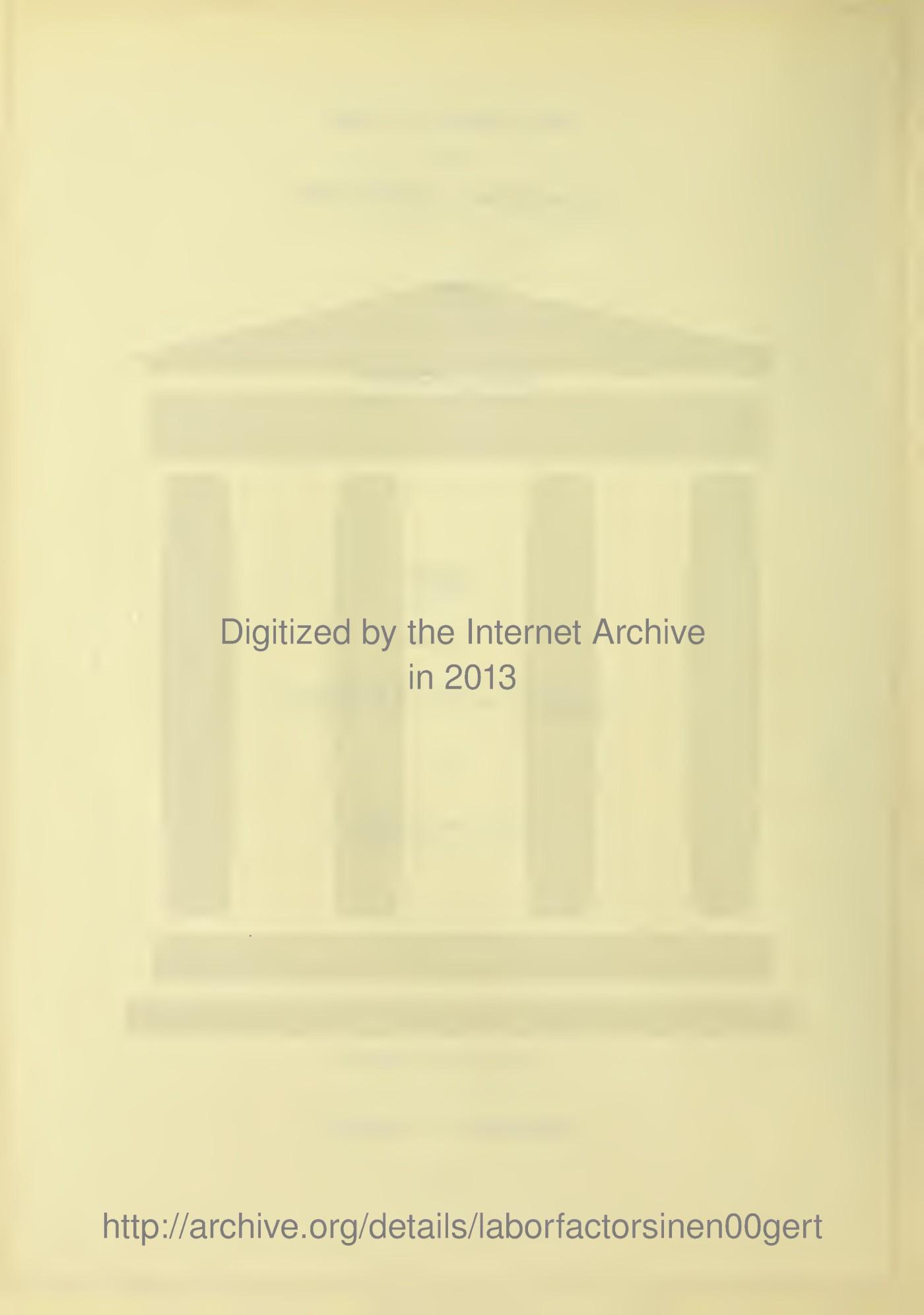
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NICHOLAS CERTEN

ENTITLED THE LABOR FACTORS IN ENGINEERING CONSTRUCTION.

IS APPROVED BY ME AS FULFILLING THIS PART OF THE REQUIREMENTS FOR THE

DEGREE OF....BACHELOR OF SCIENCE IN CIVIL ENGINEERING.

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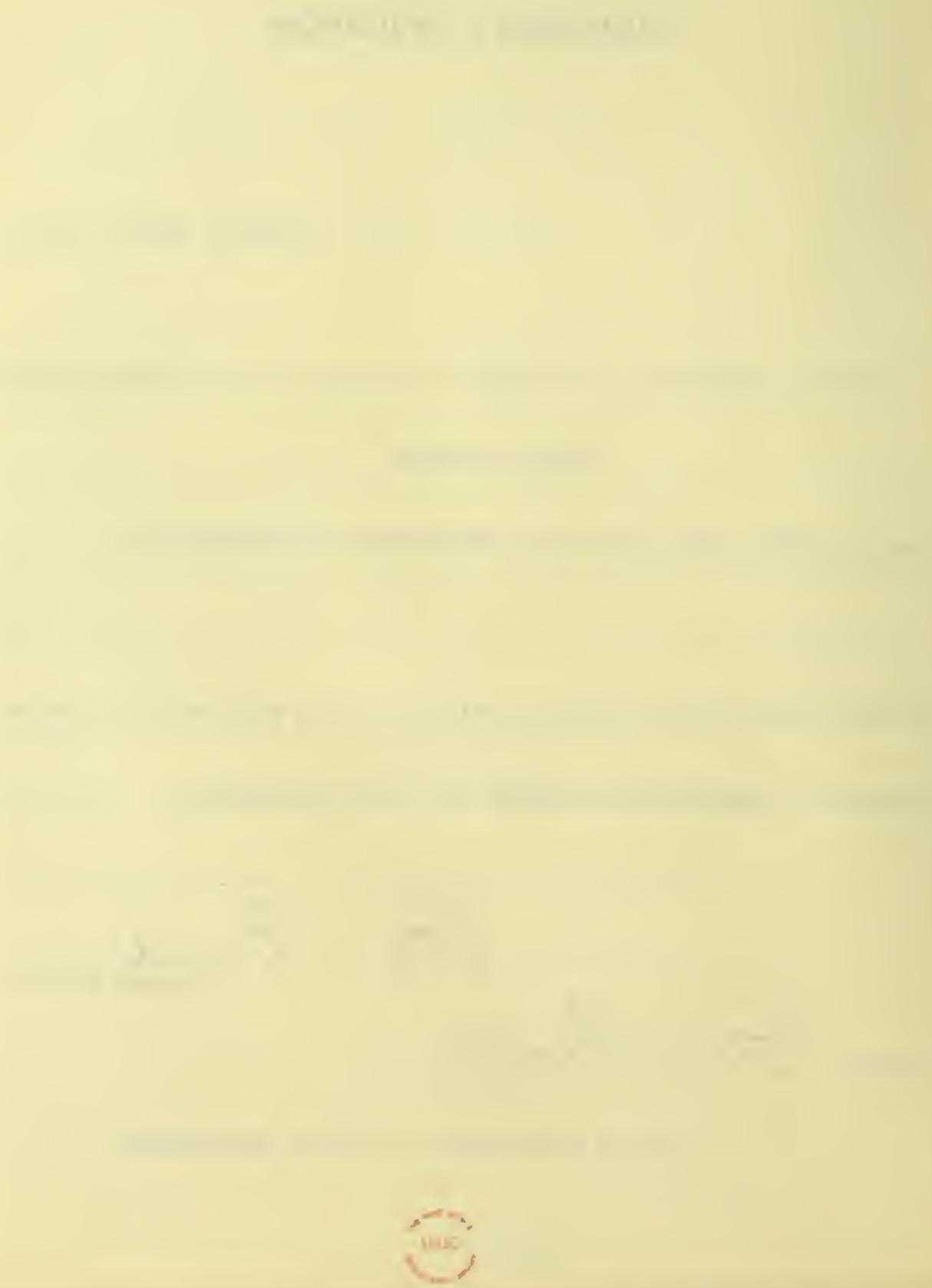


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THE LABOR FACTORS IN ENGINEERING CONSTRUCTION.

INTRODUCTION

When the population of our country was small and scattered over a large area it was possible for the employer to know and deal with each individual employee. The invention of manufacturing machinery and the combination of businesses into large corporations changed this condition. The factory system came into use; people became concentrated in urban districts; and working men were employed in numbers so large that personal contact with their employers was impossible. Under these conditions the laborers failed to secure proper consideration and were forced to organize into unions to deal collectively with their employers. At first the efforts toward unionism were spasmodic and little was accomplished, but gradually the workingmen became more united in their efforts and succeeded in getting recognition. The advance of unionism was checked by the Civil War but received an impetus immediately after by the large inflow of cheap labor.

Historical

The history of intense unionism in this country begins immediately after the cessation of the Civil War. In the year 1866 the trade assemblies of New York City and Baltimore issued a call for a National Labor Congress, and had a successful meeting with representatives of more than sixty labor organizations, some of which were secret in character. From that year, the National Labor Congress held annual meetings and progressed with the work of federation. It did not confine itself, however, to

labor problems.

In 1872 the Labor Congress decided to nominate a presidential ticket, and the result of this digression from normal lines was to cause ill feeling in the ranks of the men, resulting in the dissolution of the National Labor Congress. In its place labor organizations vastly different in character sprung into existence. Secret and semi-secret~~X~~^{organizations} were revived and new ones entered the field, the most conspicuous of which and the one which had the greatest influence on the future policy of labor was the socalled "Knights of Labor." This society with a semi-select membership, was especially strong in the western part of the United States. Other rival organizations such as the Junior Sons of '76, and the Industrial Brotherhood of the United States entered the field. Most of these, however, were short lived but their presence resulted in a call for a convention which had widespread effects.

In 1877 was held the convention at which was born the "Federation of Organized Trades and Labor Unions of United States and Canada." This new organization attempted to obtain representation from all the active labor unions and semi-secret societies in the United States. It was understood at the convention that the labor unions and the Knights of Labor should retain their organization and work hand in hand, but the strength of the Knights of Labor was such that it became dissatisfied under the leadership of the federation desiring to do the dictating itself. After several years of friction open hostilities took place between the Knights of Labor and the Federation.

In 1886 serious efforts were made to settle the disputes existing between the labor organizations, but the numerous meetings of that year ended with the issues still undecided. As a result of this dissension a new organization, known as the American Federation of Labor, was formed at Columbus, Ohio on December 8, 1886.

American Federation of Labor

The American Federation of Labor started with a membership of 316,469, and its first and present president is Samuel Gompers. The new organization has a permanent home, known as the "Temple of Labor" in Washington, D. C.; it has always been on a sound financial basis, and apparently possesses the elements of permanence. The scope of the Federation is almost unlimited, extending even into fields that are only remotely connected with labor. For instance, in recent times the American Federation of Labor has suggested our foreign policies regarding labor, as evidenced by Samuel Gompers telegram to General Carranza during the United States-Mexico controversy.

The president of the Federation is a member of the Cigar Makers' Union; the other elected officers, like Mr. Gompers, are chosen from the great ranks of the unions. These men are leaders and are responsible for the policy, strength and achievements of the Federation.

Among the most important results accomplished by the Federation is that of stimulating the workingmen to the study of unionism. It was recognized, that the strength of the central organization could be no greater than the strength of the unions

which go to make up the Federation, therefore there is always maintained a campaign impressing the workingmen with the importance of unionism.

The other achievements of the Federation are political in character and concern the public more directly. For instance, the American Federation takes credit for: the passage of twenty measures of interest to labor, and for the defeat of six hostile measures during the first session of the sixty-fourth Congress. It also presents at the national conventions the demand of labor to the makers of the party platforms, and it takes the credit for the labor planks in the last democratic platform.

The American Federation of Labor has not accomplished all of its stated ideals among which are: to help minimize industrial wrongs to bring about a fair hearing for the workingmen, which they claim has been at times denied, and to secure the ~~equalities~~^y of all men. Democracy is the keynote of present labor demands and the increasing activity of labor leaders promises a rosy future for the laboring man.

During the last few years the strength of the labor unions has grown greatly, both because of the increased membership and because of their larger efficiency in organization. In the membership of the American Federation of Labor there has been a total addition of about 18,000 members since 1913, but more significant than this, is the increase of the city central organizations of which ninety-six have been added to the list.

This growth in the strength of the union and a corresponding increase in the cost of labor have had a direct effect on the engineer who is ultimately required to solve many labor

problems. Scientific management socalled, was heralded as a solution of difficulties of this kind, but time has shown that it does not solve all the problems and that there is required a more efficient use of labor. Today the engineer is making an effort to determine the factors which cause the present conditions of employers; the technical journals are devoting space to the discussion of various labor problems; and there is being created a demand for the labor engineer.

The Labor Engineer

By the labor engineer is meant an engineer versed in the science of handling men; he must not only be a good executive and a well trained technician, but he must possess imagination, foresight,^{and} a keen sense of justice, understand human nature, and be sufficiently progressive to anticipate the consequences of industrial development. Men having all those qualifications are few and the modern engineer is realizing more than ever before his lack of knowledge concerning labor, and is endeavoring to make up this deficiency by investigation and agitation.

The study of labor is of especial interest to the engineer working in or near large cities, where the workingmen are usually well organized, and where the largest damages result from unwise handling of such men. As labor is a tool to be used by the engineer as intelligently as electricity or steel, it is necessary that he study the fundamentals of workingmen's organizations and the methods of dealing with the men. At least he must know the rules of the unions and the fundamental principles controlling the action of the union men.

In the past great losses have occurred from unwise dealing with the labor union and by the difficulties of keeping labor on the job. The monetary losses sustained by the employer are undoubtedly larger than those of the workingmen, but the losses of the latter are not inconsiderable as is shown by the report of the American Federation of Labor which gives the cost to the employee of strikes for the year ending November, 1916 as \$2,708,789.

Object of this Discussion

This loss of time and money and the general agitation for the study of labor by the engineers has prompted the writing of this paper. In large part it is based on personal experiences and observations; hence the field of discussion is limited to the city of Chicago, and to those laborers engaged in building construction. However, the conditions existing in Chicago are not very different from those existing in other cities, and practice applicable to building constructions is in a large way applicable to engineering work of all kinds.

The discussion that follows will be of: the Building Trade Unions in Chicago, the Employers' Associations in Chicago, and of personal notes and observations of the present conditions in that city. An outline of the organization, objects, accomplishments and rules of both the trade unions and the Employers' Associations are given with notes which deal largely with the character of the men and with some of the fundamentals regarding labor conditions and the handling of men.

BUILDING TRADE UNIONS IN CHICAGO.

The Building Trade Unions in the city of Chicago are organized bodies of workingmen who take an active part in the building trade. In terms as here used, are included only trades in which the men are employed in the erection of buildings, such as bricklaying, carpentering, plastering, and plumbing.

The unions may be divided into two groups: the unskilled labor and the skilled workingmen. The organization of the skilled labor into unions is as a rule more complete and is stronger than that of the unskilled labor. The former includes carpenters and electricians and enjoys the fruits of better efficiency in that it receives higher wages and works a less number of hours. Most of the mechanics or trained workingmen are American born, which in a great measure accounts for their progressiveness. On the other hand, a large percentage of the unskilled labor, such as reinforcing steel setters and excavators is composed of immigrants who are not well acquainted with the English language. Their organizations are incomplete; their understanding with the contractor is not clear, and, in general, they show a lack of force in all their dealings with the contractors. The hodcarriers' union is, however, an exception in the ranks of unskilled labor; it is strongly organized and is among the wealthiest of Chicago unions.

National Unions

The building up of the different unions is the same in all but minor details. The origin of each was the local union and the outcome is the American Federation of Labor. During the

thirty-sixth Annual Convention of the American Federation of Labor, held at Baltimore in November, 1916, a charter and certificate of affiliation was issued to the Bricklayers, Masons and Plasterers International Union of America which was the one link needed to complete the chain of international unions and organizations eligible to membership in the Building Trades Department of the American Federation. The Federation does not take an active part in the operation of the unions, but is the court of final appeal in all matters pertaining to jurisdiction between the different unions and judges on all things interunion in character.

All except a few of the poorest building trade unions in Chicago are affiliated with a central organization either national or international in character. The central body is a tangible organization having a constitution and standing officers. It has a regular time for conventions, at which time delegates from all the local unions convene for the following purposes: discussing the policy of the union, electing officers, appointing committees, and passing on all other questions pending.

The objects of the central unions are expressed in different terms by each organization, but the fundamental object is the same and is best expressed in the constitution of the Bricklayers, Masons and Plasterers International Union of America, which says "The object shall be to unite into one parent body, for mutual protection and benefit, all members of the masons craft that work at the same, who are citizens of the country within its jurisdiction, without condition as to servitude or race."

The standing officers of the national body are usually five in number: president, first vice president, second vice pres-

ident, secretary, and treasurer. These men are selected at the convention and are men prominent in the affairs of union. The salaries of the officers vary with the different unions, but are sufficient to induce capable men to try for office. For instance, the annual salaries of the presidents of the various unions are: Bricklayers, Masons and Plasterers International Union of America, \$5,000., International Hodcarriers and Building Laborers Union, \$2,500., United Brotherhood of Carpenters and Joiners of America, \$2,600., Operative Plasterers and Cement Finishers International Association of United States and Canada, \$2,500. The duties of the standing officers are: to issue charters to local unions, to gather statistics, to keep records, to publish the proceedings, to take charge of the moneys, and to handle the clerical and executive work incident to their organization.

The most important body within the union is the Executive Board. This Board is sometimes composed of the executive officers and several elected members, or all elected members except the chairman, who is usually the president. The power of a union lies in the strength of its executive board; here all large questions are decided and the real objects of the union are accomplished.

All jurisdictional disputes are presented to the executive board, and ^{its} ~~their~~ decision is final unless reversed by the general convention. The Board has complete control of strikes and lockouts, and may at any time order a general strike or arbitrate one already in existence. The power to make agreements with the contractor is also given to the executive board, altho this power is not exercised where the local union is strong and has capable men at the head. The local unions are in direct communication

with the executive board at all times, and present~~all~~ disputes not capable of settlement by the local union.

Local Unions

The stated objects of the local union or district council may differ materially from those expressed by the central body, usually being more comprehensive. One union expresses its purpose "To unite all bricklayers and stone masons, laying either brick or laying or setting stone." This same union says "that by concerted action their interests will be protected and their condition improved." Another exceptionally strong union in the city of Chicago makes the statement that their objects are, "to discourage piece work, to encourage an apprentice system and a higher standard of skill, to reduce the hours of daily labor and secure adequate pay for hour work, to cultivate feelings of friendship among the craft, to assist each other to procure employment, to furnish aid in case of accident, sickness or death, and by legal and proper means to improve the moral, social and intellectual conditions of our members."

The local unions are the avenues of entrance for the new members, the qualifications for which usually pertain to two things: (1) mechanical ability (2) initiation fee. The unions of unskilled labor have no other requirement of ability than, that the applicant be working at the "calling" and their initiation fees are about fifteen dollars; the skilled laborer, however, has higher initiation fees and more exacting requirements of mechanical ability.

The mechanical ability of a candidate for membership into

a union of skilled labor must be testified to by a specified number of members of the union and also by the candidate's employer. Most of the candidates are apprentices, the training of who are provided for by the union. The time and method of training varies for the different unions but it is usually for a period of two to four years, supplemented, sometimes with school work. For instance apprentices for the Bricklayers and Stone Masons Union are required to serve for a period of not less than three years, and to attend the union's school of mathematics and drawing, the non-attendance of which is punished by expulsion from the union.

The initiation fee into the different mechanic's unions varies but is seldom less than twenty-five dollars or more than fifty dollars, to which is usually added special assessments, such as a strike fund assessment amounting to about ten dollars.

The proceeds of the union are used for conducting the business of the organization and to provide for: strikes, sick benefits, death benefits, and libraries. The strike fund is an accumulating fund from which each member receives, during the time of strikes, a weekly allowance to partially replace his loss of wages.

Sick and death benefits are in most unions recent additions, and the mechanism has not been perfected. In this particular the non-skilled labor unions are far ahead of their more skilled brethren. A local of the hodcarriers union was the pioneer in relief work for its members, and their enviable record has caused other unions to institute benefit funds.

The unions also act as an employment agency for the members and encourage the employers to hire their men thru the union

offices.

The local unions are concerned with two kinds of agreements: (1) interunion agreements, (2) agreements with contractors. The interunion agreements deal with jurisdictional matters, defining the classes of work which shall come under the direction of the various unions, and stating the relations existing between the different trades while on the job.

The agreements with contractors are usually made thru the Building Trade Council, which is a body of men appointed from the different unions to represent them in their dealings with the employer's associations, or the agreements are made directly with the employer's associations. In either case the result for the union men is a set of working rules which guide them in their daily conduct.

The working rules apply to the following: hours of labor, overtime pay, extra shifts, holidays, wages, pay days, working conditions, steward, and rules governing the apprentices.

Most of the rules, except those of wages, apprentices, and pay days, are common to all the unions and are briefly:

(1) Eight hours constitutes a day's work.

(2) Time and a half shall be paid for overtime and holidays. (the carpenters receive double time.)

(3) When work is in more than one shift, no man shall work more than one shift, and eight hours shall constitute a shift.

(4) Holidays are: New Year's Day, Decoration Day, Fourth of July, Thanksgiving Day, and from 12:30 Saturday noon to 7:30 Monday morning. No work shall be done on labor day unless by special permit from the President of the union.

(5) The working condition is that there shall be no non-union men employed on the same job.

(6) A man called the steward shall represent the union on the job and he shall be selected from the men working on the job.

The building trade unions in Chicago have secured conditions for the men which are almost ideal. Not only are the hours of work and the wages such that the union men are assured a good living and plenty of time with their families, but their education is partly provided for by libraries and schools, and the future promises adequate insurance for the members in case of sickness or death.

EMPLOYERS' ASSOCIATIONS IN CHICAGO

Here the term "Employers' Associations" will mean any organization of business men who are active in employing members of the building trades' unions. At present there are about nineteen such employers' associations in the city of Chicago, all of which, except the Masons' and Builders' Association are affiliated with a central organization. The employers are divided into groups according to the kind of work they contract for and nearly all of them belong to one or more of the Employers' Associations.

Employers' Associations.

The stated object of the individual associations is to "Secure uniformity of action in matters regarding the mutual interest" of the employing contractors. As contracting is a competitive business, the combination cannot be misconstrued as a trust, and the phrase, "Matters of mutual interest," concerns only the employment of labor. The object is secured by appointing committees to represent the contractors in all controversies with the labor unions.

Membership requirements are different in minor details for the associations, but fundamentally they all agree. Every association requires that the applicant be a man actively engaged in the contracting business of that particular branch of the building industry which the association represents. All of the associations further impose a time clause which usually requires that the applicant has been contracting a year or more previous to the time of his application. Usually, tho not always, each association shows its prime object in a clause which bars from

membership all men who are active members of a trade union.

Each association is incorporated and chartered under the state law. The constitution and bylaws are usually made public in an annual book which each association publishes. These provide for the appointment or election of members to the various committees and ^{for} all business incident to such an organization. In past years it seems to have been the policy of the associations to institute a fund for death benefits, or in other words an insurance fund. An amendment which provides for such a fund has been incorporated in the bylaws of most associations. But none of the articles outline the policy of the associations in their treatment of the labor organizations, or provide for the publicity of labor controversies.

The time of meeting is specified in the constitutions and the place of meeting is in rooms rented by the associations. The rooms are rented not only for formal meetings, but also for the transaction of other business. Here the secretary and president have their offices and usually a general information bureau is maintained. In some cases the association furnishes reading rooms which are open to the members only. In fact the rooms serve as a place of common meeting and interest; and, in a small way, are a substitute for a club. The employers' associations, like the union, have a tendency to concentrate and occupy quarters near each other. Therefore it is not surprising to find that twelve of the employers' associations have rooms in the same building and that seven of the twelve occupy the same suite.

The Building Construction Employer's Association

The central body, known as the Building Construction

Employer's Association of Chicago, was organized July 27, 1911. The object of the organization is to secure a more unified action in "The making of trade agreements respecting the employment of labor, to insist upon the fulfilment of such agreements, both in letter and spirit, and to promote the settlement of labor disputes by arbitration." The constitution emphatically states that it is not the intention of the organization to control prices nor in any ^{way to} restrict competition among its members.

In order that all employing contractors may benefit by being members of the association, two classes of members are named: represented members and individual members. Represented members are contractors who belong to an association whose members engage in the actual construction of buildings. It often happens that a contractor is engaged in a business that is not represented by an association. When this is the case, the contractor has the opportunity to become an individual member of the Construction Employer's Association. Individual members are afforded all the rights and benefits accruing from the association's work and are responsible directly to the association for their actions. The represented members, however, are responsible to their individual organizations for their conduct.

The Construction Employer's Association provides for the election of officers in unusual manner. All officers except the secretary are elected by the executive board, which is composed of delegates from the various associations. Each employer's association is represented by delegates chosen from its members, each association being allowed delegates proportional to the membership of the association but not exceeding six. In cases where

the trade is not represented by an association, the president has the power to appoint delegates from the individual members, but the number of delegates appointed must not exceed three. The secretary, who is appointed by the president, is a salaried officer. He has the keeping of all records, the collection of fines, dues and assessments and the issuing of vouchers on the treasury for all bills approved by the finance committee. Besides the various clerical and financial duties, the secretary is a member ex officio of the executive board and of all committees.

The method of assessing dues is peculiar to this organization and is comparable with taxation systems. For instance, section three of Article six of the Bylaws states: "Each represented or individual member shall pay as dues to the secretary of the Association and for the use and benefit of the Association a sum equal to two tenths of one (2-10's of 1%) per cent of the amount of each contract made by him or it for the construction of any building or any part thereof, or for the repair or remodeling which may be directly or indirectly required for any building or structure or part thereof, in Cook County, Illinois, including any and all work done upon the time and material basis for such building or structure.

"The minimum amount of dues to be paid by each member shall be the sum of one dollar (\$1.00) per month."

The association has laid down rules for its members to follow in their dealings with the workingmen. For instance, members are forbidden to discuss or act upon labor disputes with labor representatives at their place of business, and members are prohibited from making contributions of any kind to labor organiza-

tions and from purchasing or transacting business the profits of which are in behalf of any labor organization. It is further requested under penalty of a fine that each member reports to the secretary within twenty-four hours any strike or stoppage of work by any of his employees. Each association including the central organization states that the ultimate purpose is to secure unified action in matters concerning the employment of labor. The associations present to the employers a means for dealing with the unions as a body, and the employers are combined in any action that they see fit to take. The Building Construction Employer's Association is parallel to the Chicago Building Trades Council and serves the same purpose for the employer's associations as does the Chicago Building Trades Council for the trade unions. Together they have accomplished much and their work has been far-reaching in effect.

The Uniform Form of Agreement

The uniform form of agreement, which was formulated by a joint conference of the Building Construction Employer's Association and the Chicago Building Trades Council, is the most important work accomplished for systematizing labor troubles. Employer and employees alike promise to honor the letter of the uniform agreement. Further, it serves as a basis of all new understandings and is embodied in most of the agreements now in existence. The unions not affected by the uniform arrangement are those not affiliated with the Building Trades Council, in other words all unions of unskilled labor; on the other hand the employers who have made independent agreements are those not connected with the Building Construction Employer's Association.

Notwithstanding the fact that there are unions and employers associations which do not officially recognize the uniform agreement, there are few understandings that are not based upon it. For instance, the Bricklayers' and Stonemasons' Union is affiliated with the Building Trades Council but communicates with the Masons' and Builders' Association which is independent; their agreements, however, are subject to the terms of the uniform agreement. Parallel with this case are others. Because of this, and because the arrangement is undoubtedly in an excellent shape most of the agreements are based upon the form approved by the Joint-Conference Board. Employer and employee alike are provided for in the uniform agreement; thus it is worthy of special attention.

On January 15, 1915 the Joint Conference Board approved and formulated the uniform agreement, which provides adequate protection for both employer and employee. The Joint Conference attempted to provide a method for dealing with possible contingencies of strikes, lockouts, or the like. For instance, the second clause states; "That both parties hereby agree that there shall be no strikes, lockouts or stoppage of work without the sanction of the Joint Conference Board." In addition to reporting a strike or lockout to the Joint Conference Board, another precaution is taken by providing a Joint Arbitration Board, composed of members of both parties to the agreement and an umpire who shall not be affiliated with either party. The members of the Arbitration Board are elected yearly, and are called upon to settle all disputes.

The Employer's Associations have made the strongest plea

for themselves in the eight fundamental principles upon which they demand that all agreements shall be based. These principles are:

- (1) That there shall be no limitations as to the amount of work a man shall perform during his working day.
- (2) There shall be no restriction of the use of machinery or tools.
- (3) That there shall be no restriction of the use of any manufactured material, except prison-made.
- (4) That no person shall have the right to interfere with workmen during working hours.
- (5) That the use of apprentices shall not be prohibited.
- (6) That the foreman shall be the agent of the employer.
- (7) That workmen are at liberty to work for whomsoever they see fit, but they shall demand and receive the wages agreed upon by the Joint Board in this trade under all circumstances.
- (8) That employers are at liberty to employ and discharge whomsoever they see fit.

An analysis of the eight principles enumerated shows that the employers were in a commanding position at the time the Joint Conference met, and that they exacted all the safeguards possible from the laboring men. However, the laboring man can and does make it impracticable for the contractors to hold to some of these agreements. For instance, he can restrict manufactured goods to those which are union made. But in any case, notwithstanding the difficulties still existing, the Uniform Form of Agreement has helped to simplify the labor troubles of the city of Chicago.

In simplifying the labor troubles the Employer's Associations have accomplished in part the purpose of their organization, for they have protected themselves by uniform action, and

they have organized in sufficiently large numbers to cope with the strongly organized labor unions, and to command the respect impossible for the individual to command.

PRESENT CHICAGO LABOR SITUATION IN BUILDING TRADES.

To give an accurate and complete description of the present labor situation in the Building Trades of Chicago is beyond the scope of this thesis and beyond the ability of the writer. It is, however, possible and desirable to discuss some of the larger features upon which the present condition is dependent and discuss the general status of Chicago labor. The conditions fundamental to any labor situation are: supply, demand, character of the workingman and of the employer. At present the labor in Chicago consists of a somewhat independent body of men, because conditions are extremely favorable for the building trade laborers, and they take advantage of all possibilities to better themselves. The contractor and engineer are in the position where they must seek of the labor men and for success must learn to discard dictorial methods for the present. This unusual situation becomes apparent when the present conditions are discussed.

The Law of Supply and Demand.

That labor is subject to the law of supply and demand is an established fact. The writer had an unusual opportunity to verify the correctness of this fundamental law, for in the early part of July, 1914 he was engaged in the trade of laying brick and at that time experienced what has been the maximum demand for bricklayers in the City of Chicago. In the early part of the season of 1914 the building activities in the city were seriously hampered by a strike of the brick makers, which coming unexpectedly and in the midst of an active part of the season left many buildings uncompleted for the want of material, and caused the migration

of a large number of workingmen. The striking brick makers came to an agreement with their employers late in June and the immediate result was a large amount of work afforded and few workingmen available. Each contractor wished to complete his work as soon as possible and resorted to all possible means for securing labor. Special inducements were made to the bricklayers in the City who at times were thus able to demand successfully from five to ten cents an hour more than the scale set down by the union. However, the workingmen do not always enjoy such happy times, and the writer experienced the reversed conditions the following summer.

In July, 1915, during the carpenters' strike for increased wages in the City of Chicago, the writer was in a position where it was necessary for him to employ carpenters, for construction work which was situated on the edge of the City and afforded employment to about five men. Laborers were so abundant that no trouble was experienced in securing union men to work for wages considerably less than the union scale; however, it was not the intention to take advantage of the abundant supply and the laborers were paid the same scale as the Company had been in the habit of giving. In contrast to these two extreme conditions is the present abnormal situation.

Present Situation in Chicago

At the present time, spring of 1917, the building activity in the City of Chicago is more intense than ever before; the demand for labor is insistent and the supply is not over-abundant. The construction engineer finds a particularly fruitful field in the City of Chicago as the city has begun upon what will perhaps be the greatest construction year in its history. Private

interests and municipal bodies are starting much new work. Factories, warehouses, and railway terminals are being planned and built in unusual numbers. Also the city of Chicago and the Sanitary district of Chicago are contemplating many improvements, and it appears that the only ^{limit} on the amount of work to be done is that set by the supply of labor. On account of the unusual activities all over the country labor is in general demand and the Chicago district is no exception. An over-abundance of inside factory work draws many men from the construction field as they assume that inside work is more continuous. This condition together with the unusual building activities make the labor problem one of great concern. Still the conditions today are such that the workman cannot afford to live on savings, so we find every able bodied man working. The problem of labor for the engineer is to make conditions so favorable that labor will stay in the Chicago district and the solution of this problem is only accomplished thru a study of character.

Character of Employers and Labor Leaders.

A study of character means studying the contractor as well as the laboring man. The attitude of labor toward the employer is largely a result of his dealing with his employer. To make possible the better handling of men it is necessary to study and understand both the laborer and the employer.

When discussing the character of labor it is desirable to distinguish the foreman from the labor leader. The foreman is the agent of the employer and yet he must be a union man, thus he is rather inert in labor affairs. He is usually not a leader among the union men and has no place in the commercial field of the

employer other than the handling of labor. Often he is instrumental in molding the feeling of the workingmen towards an individual employer tho this influence is not far reaching. On the other hand, the labor leader represents the labor men in feelings, thought and business. He, as a rule knows what he wants and goes after it. The typical labor leader is somewhat reticent when talking with a stranger but when once he is convinced that his listener is not opposed to unions, his remarks are outspoken and frank. Diplomacy is not a conspicuous trait of the labor leader. Often his thoughts are hazy but the central idea of unionism is always apparent. A clearer conception of the laboring man is possible by the discussion of a few particular men who are chosen as being representative of the class.

Mr. A, is president of a union organized in 1900 and which has about 211 members in Chicago. This union has a particularly good record having had but nine weeks of strike since the time of its birth. Mr. A does not impress one as being a particularly brilliant man, but has undoubtedly many of the qualifications of a leader. He was aggressive but believed in a peaceful settlement whenever possible. For instance, he said that experience had shown him that an agreement without a fight was preferable to an agreement with a fight. He is a strong believer in organized workingmen and was at that time launching a new organization in a new field. Furthermore, he was willing to discuss the labor problems and answered all questions that were asked.

Mr. B, recording secretary of the Chicago Council, of a union organized in 1903, and having about 15,000 members in Chicago resented being asked any questions concerning his union and at first

was quite secretive. However, he soon became convinced that the interview was not to find fault with the union or to procure incriminating evidence and he brought forth a few printed pamphlets containing the constitution and working rules, stating that they were all the information available. Fifteen or twenty minutes more of friendly talk with Mr. B succeeded in drawing from him some interesting fundamentals. He felt that the greatest loss to the laboring man at present was thru wages unpaid; his particular union employed a lawyer by the year to collect these. A record of the strike transactions were not available to the public, but Mr. B offered free access to the books before the interview was over. As a leader he was a decided disappointment in that he showed neither clear thought nor a strong predetermined plan. He gave indications of being easily lead by argument and showed a decided distaste for work. Moreover, it is doubtful if an employer could convince Mr. B. by argument as he was ~~self~~ satisfied with his own importance and felt that contractors were not to be trusted.

Mr. C, financial secretary of a local of a large union, has had more education than ordinary laboring men; he is well read and gives thought to the work of unions. Contractors, are considered by him as the natural enemy of working men, and at any or every opportunity he urges fight. The union represented by Mr. C has recently closed a semi-successful fight on the contractors, but he urges a new and more complete contest. Altho this union is one of the better organized and its members receive high wages they are not well satisfied. It has a notorious reputation for strikes and disagreements. The attitude of the organization was shown when Mr. C said that the workmen were earning about thirteen

dollars per day and were receiving less than half of the amount to which they are entitled, the other half they will get by continuous and systematic fight. However, Mr. C gave little information on the strikes of the past and all information that would tend to throw light on the labor situation was withheld. He represented one of the aggressive and secretive types of labor man; those who make arbitration a failure.

The laboring man is determined on the good of unionism, he is not a diplomat; he does not have a kindly feeling nor tolerance towards any one not in sympathy with his movement; he looks upon his employer as an enemy; and believes that brute force is his best weapon. On the other hand the contractor shows a marked difference.

The contractor is a student not only of business but of human nature. In the prosecution of his business he must understand the men in order to make his business a success, but he usually assumes that he is in the right and that the laboring man is in the wrong. Nevertheless he is more open to conviction by argument, because the nature of his work demands adaptability to changing conditions. Also, he is usually more learned than the laboring man and often starts on his career with advantages which make it impossible for him to appreciate the laboring man's viewpoint. As in the analysis of the laboring man a few illustrations will help towards a clear understanding of the employer's character.

Mr. D, is a member of a contracting firm. He is a pleasant man, well met, keeps friends easily, and his capacity for work seems unlimited. Studying the psychology of labor is a hobby and

he follows all the movements made by the labor unions. His study and work are directed towards bettering himself and finding methods whereby he can circumvent the labor men. Mr. D has reached his position by hard work and unlike many employers he did not start with many more advantages in the way of education and money than the laboring man. He is a typical example of the successful business man and is unusually successful in his dealings with labor.

Mr. E, is a secretary of an employer's association. Naturally his interest is largely in the organization but he is a member of a contracting company which is engaged in active business. He is a quiet man who guards his speech well and leaves the impression that he is withholding information. When asked about the records of controversies between his association and the labor unions, he replied that they were never made public. He also stated that the employers were not in favor of state arbitration, being inclined to work out their own program with labor unions. Like Mr. D, Mr. E is a student of labor psychology but in a slightly different field, he is more interested in labor work done by the United States government and makes a business of collecting government publications concerning labor. Unlike Mr. D he started in life with the advantages of having a liberal education and of stepping into a business owned by his father. By giving little information of his views on labor troubles, Mr. E. assumed the natural attitude of the employer, and showed the secret side of the associations. The next example, Mr. F.differs from both Mr. D and Mr. E and is worthy of particular study.

Mr. F, is also a secretary of an employer's association, however, unlike Mr. E he is only interested in the associations

and was active in the organization of many. He has made a life study of laboring men, labor unions, contractors and employers associations. Connected with the labor game since the organization of the employer's association he is better equipped to handle controversies than most of the men employed in the labor game. Mr. F., is a close student of labor and endeavors to see the laboring mens' side, but he is engaged by the contractors and his first service is to the contractors. However, he asks fair play when dealing with the labor leaders, and like the employers he is loath to give out information concerning the strikes and discourages arbitration by the state or city. No information concerning his education was available, but his personality indicated that he was a man of average training and well developed intellect from constant study of his problems. Above all other characteristics, however, is that of his ability to make friends and to leave the impression of sincerity. However, it is doubtful if he is sincere as actual tests have shown that he does not abide by his statements and that he systematically avoids direct answers to questions.

Characteristic of all employers is their unwillingness to impart information about strikes or labor disputes in general, however, they are always positive that the laborer in the case of strikes is not just in his demands, and at the same time withhold from the public any information which would illuminate the strike conditions.

As a general rule the employer is a more learned man than the workingman and correspondingly more clever in diplomacy, also he is self-centered and works with an idea of benefits to his particular business, because of this it is more difficult for the

employers to maintain a successful lockout on the employees. The past has shown that employers are not as unified, or as strongly organized as the laboring men, inasmuch as employers have individually acquiesced to the laborers demands when they found it possible.

Relations During Strikes.

During strikes the relations of the employer and employees are radically different than at peace time. This is emphasized in times of general strikes. It is then common for the laboring men to damage the contractors as much as possible by the mutilation of property, and in that way expose themselves to legal action. On the other hand the contractors, busily engaged in the protection of their property, not only from the weather, but also from the workingmen, become more and more opposed to unions and with some justice. Under present conditions it is usually possible to predict with certainty when the general strike will go into effect and there is ample time to protect property. However, this is not so in the case of local strikes which have become more numerous during the last few years and which are not always in the control of the workingmen themselves.

Although the men have the power of strikes it is usually the officials who make the final decision as to time and actually declare local strikes. The local strike which is a strike on one particular piece of work is the most disastrous for the engineer and contractor. The latter receives little or no notice of the strike; is not able to prepare for it in any way, and the union men themselves are often in the dark as to the real cause. Strikes of this nature are all handled from headqu~~a~~^{ters} and are the cause for

large losses on the part of the contractor and the laboring man. An excellent illustration of this type of strike occurred last year. The building on which this particular strike occurred is the Pennsylvania Freight House in the city of Chicago, the largest single job then in progress. The strike affected several hundred workingmen and no less than six contractors, yet it was local, and not directed towards any of the contractors, being directed towards the Pennsylvania Railroad in an attempt to unionize the railroads within Cook county. Several weeks before the event actually occurred there were rumors of a strike, but they developed into nothing and at the time of action no one was actually prepared. On July 9, 1916 after four o'clock, delegates from the different unions stepped on the job and informed the men that a strike was in effect on and after four-thirty o'clock. This edict, from the Building Trades Council ~~and~~ affecting only the skilled laborers, not only caught the contractors unawares but also the working-men who for weeks after the strike came around hoping for a resumption of work. Each had the same questions to ask: When does work begin again?, and What is the strike about?, likewise for some time following the strike the same questions were being asked by the employer. In the meanwhile the employees were losing money in wages and the employers were losing money on their contracts. This tremendous expensive strike was finally settled to the satisfaction of all parties concerned in March, 1917. Such experiences as the foregoing convinced the engineer and contractor of the importance of labor study.

Summary

Today the labor engineer of Chicago must exercise all his knowledge of labor laws, psychology and detail of labor organizations. Labor is scarce because of the great activity in all industries, and the unusual amount of buildings in progress of construction. This scarcity of labor is apt to lead to higher wage demands and it is a clever man who can make the laborer feel satisfied with the same conditions he enjoyed two years ago. Furthermore it must be recognized that experience has made the laborer more expert in prosecuting strikes and that more solid unionism makes the laborer stronger. On the other hand, however, the contractors are better united and are spending more time in the study of conditions affecting labor. The personnel, however, of employer and employee is changing so rapidly that a constant study is necessary for the success of the labor engineer. Chicago may be said to be in a period of labor transformation which will proceed rapidly for the next few years. Today it is a question of procuring new labor in sufficient quantities to keep construction active and retaining the old and experienced men,,to instruct the new men.

CONCLUSIONS

Trade Unions

The history of the Building Trades Unions in Chicago shows them to be unusually successful both in organization and in the prosecution of strikes. Less than two per cent of all the men in the city engaged in construction work are non-union men, and in 1916 there was organized the Excavating, Wrecking and Common Laborers Union, which makes complete the list of Building Trade Unions in the city. The successful strikes, particularly those of the hodcarriers, plumbers, carpenters and bricklayers, are evidence of the solidity of their organizations.

The public today must recognize the unions and look at them as permanent institutions, for it is unlikely that the laboring man having once enjoyed the successes of unionism will revert back to the conditions of servitude parallel with those of individualism. Furthermore, the unions are being made more attractive by the addition of certain insurances for the workingman's family in case of death or sickness, thereby increasing their already strong hold on the laborer.

The work and the ideals of the union are commendable in that they have improved the conditions of labor, made possible the easier education of the laborer, and afford certain protections for the men both in time of sickness ^{and} ~~of~~ of exploitation. However, there are as in any new organization, many improvements desired in the union and it is expected that time will remedy some of the defects.

The present activities of the unions indicate that they are improving and solidify their organizations; with this is likely

to come a cleansing from undesirable characters and ideas. This new union will command recognition and will seek to gain all that is desirable to the laborer, perhaps will claim concessions that will be unjust.

Whether the unions increase in strength or not it is certain that in the future the engineer must consider them and the men they represent as carefully as they now consider the strength of the materials they use.

Employers' Associations.

Experience shows that organized labor is stronger than unorganized employers, therefore the contractors in the city have organized into associations in opposition to the union. The objects of their association in a great measure have been realized; they have determined a form of agreement to be followed, they have established eight cardinal principles upon which all agreements are to be based and have contributed towards arbitration. However, there is one particular in which the association has failed to succeed.

In the past the contractor has not been as loyal to his association as the laboring man has been to the union. For instance, as shown in numerous cases he may endeavor to employ cheap labor on the small job or during a strike for higher wages he may open the work because he finds it more profitable to pay the higher wage than let the work lie idle.

However, it is to be expected that as long as unions exist there will also exist employers' associations, and as the unions increase in strength the employers will become more united in their action. Better cooperation among the contractors is desirable

in order to maintain a balance of power so necessary for the smooth working of labor conditions. For instance, if the unions were obliged to deal with the individual contractor they would soon wreck themselves, because of the impossibility to maintain all contractors on an equal basis. On the other hand the contractors acting as individuals would soon find themselves in a position where they would have to buy protection from the unions.

Cooperation, Publicity and Arbitration.

Both the union and the employers' association may be justly criticized for their lack of: cooperation, publicity and arbitration.

At present it is impossible for any person not connected with the unions or with the employers associations to obtain data concerning strikes, settlements and controversies. If the actions of both the employers and the union men are justified, there is no reason for keeping secret the records of strikes and controversies, on the contrary it is desirable that the records become public property in order that the people may become acquainted with the losses incurred by strikes. Furthermore no remedial suggestions can be made if the true conditions are unknown. It is desirable that the public know at all times the true relations existing between the employers and the employees, and to be able to turn to records of the past to study problems of the present.

Cooperation is necessary for efficiency. It is true that the unions endeavor to increase the wages of the worker and that the employers' associations are organized in opposition to the unions, still they are working for the same end: namely, the con-

stant pursuance of work under the most favorable conditions. Proper collaboration should reduce to a minimum the expenses incident to strikes and delays of work, it should improve conditions, and keep in harmonical working order both organizations. Collaboration is not impossible; it is highly desirable; and may perhaps be stimulated by the presence of a disinterested third party.

It is true that in the past the unions and the employers associations have practised arbitration, but the Board of Arbiters was always composed of men selected from the two organizations, which condition is not desirable nor effective in operation. In the state of Illinois the law provides for a State Board of Arbitration which will step in at any controversy upon the invitation of both parties; it is conspicuous that since the establishment of this board it has not been called to arbitrate any of the differences between the employers and employees of the Building Trades in Chicago. No adequate reasons have been given why the State Board of Arbiters has not been invited to sit in at controversies and only one conclusion can be drawn, and that is it would not be in keeping with the secret policies of both the unions and the associations. Infinitely more can be accomplished, and with a saving of resources, by arbitration and by peaceful settlements of disagreements, than by fighting until the strength of one side is exhausted.

A great saving in time and money and in the feeling of individuals and the public, would result if both the unions and the employers' associations gave more publicity to their action and practised the principles of cooperation and arbitration, and this saving is to be desired at the present time.

Present Conditions in Chicago.

At present the city of Chicago is experiencing a most active season, both municipal and private interests are planning and starting much new work. Factories, warehouses, railroad terminals, and bridges are being planned and constructed in unusual numbers. In order to successfully meet the demands on them it is necessary that harmony exists between the contractors and laborers, as the supply of labor is limited.

All the industries are competing for labor, it is in demand everywhere; in the field, factory, and on the construction job, added to this is the demand for men to serve in the army and in transacting the business of the government. New methods must be devised to meet these new conditions and it is only natural that the public should turn to the engineer for a solution of the problem in labor concerning engineering work. In the future, it is probable that he will be called upon to maintain harmony and peaceful working conditions in the building trades of Chicago and it is just to expect him to do the work.

The Labor Engineer.

The engineer has a strong foundation on which to build his new business of labor engineering; his unquestionable reputation for honesty and his vast knowledge of construction work and its requirements. As in the past the engineer can be expected to faithfully perform any work required of him; to give both the contractor and the laborer careful consideration, and in making his decisions to give his honest opinion after carefully weighing the facts of the case. Furthermore his intimate knowledge of actual

conditions existing on the job will help him in arriving at a conclusion.

No one will deny that the engineer has complete cognizance at all times of the technicalities of his work and it is to be expected that he will be the best judge of labor requirements, but if he is to solve efficiently the labor problems he will need to study efficiency from a new view point and consider the laborer as an individual. Also he will need to study human engineering and learn the fundamentals of labor organizations.

Like all other studies the work of learning must begin with the fundamentals and in this case that means studying the present conditions of labor, what has caused these conditions and the rules which govern the actions of both union and non-union workers. Next, the engineer must study human engineering which includes a thorough knowledge of cooperation among the workingmen and between the employer and employee, and the psychological forces which keep men on the job and which drive them off. Finally he must continually study the changes in the labor situation due to the changes in industrial conditions. The ideal human engineer is one who commands respect, invites confidence, and has a thorough knowledge of industrial and labor conditions.

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